SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: Jardieu, Paula M.
Presta, Leonard G.

(ii) TITLE OF INVENTION: Humanized Anti-CD11a Antibodies

(iii) NUMBER OF SEQUENCES: 71

(iv) CORRESPONDENCE ADDRESS:
(A) ADDRESSEE: Genentech, Inc.
(B) STREET: 1 DNA Way
(C) CITY: South San Francisco
(D) STATE: California
(E) COUNTRY: USA
(F) ZIP: 94080

(v) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: WinPatin (Genentech)

(vi) CURRENT APPLICATION DATA:
(A) APPLICATION NUMBER:
(B) FILING DATE: 19-SEP-03
(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: 60/031971
(B) FILING DATE: 27-NOV-1996

(vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: 08/974899
(B) FILING DATE: 20-NOV-1997

(vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: 09/420745
(B) FILING DATE: 20-OCT-1999

(vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: 09/975798
(B) FILING DATE: 28-FEB-2001

(viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: Tan, Lee K.
(B) REGISTRATION NUMBER: 39,447
(C) REFERENCE/DOCKET NUMBER: P1014R1C1D1C1

(ix) TELECOMMUNICATION INFORMATION:
(A) TELEPHONE: 650/225-4462
(B) TELEFAX: 650/952-9881

(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 108 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Asp Val Gln Ile Thr Gln Ser Pro Ser Tyr Leu Ala Ala Ser Pro
1 5 10 15

Gly Glu Thr Ile Ser Ile Asn Cys Arg Ala Ser Lys Thr Ile Ser
20 25 30

Lys Tyr Leu Ala Trp Tyr Gln Glu Lys Pro Gly Lys Thr Asn Lys
35 40 45

Leu Leu Ile Tyr Ser Gly Ser Thr Leu Gln Ser Gly Ile Pro Ser
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
65 70 75

Ser Ser Leu Glu Pro Glu Asp Phe Ala Met Tyr Tyr Cys Gln Gln
80 85 90

His Asn Glu Tyr Pro Leu Thr Phe Gly Thr Gly Thr Lys Leu Glu
95 100 105

Leu Lys Arg

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 108 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val
 1               5                  10                  15

Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Lys Thr Ile Ser
            20                  25                  30

Lys Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
            35                  40                  45

Leu Leu Ile Tyr Ser Gly Ser Thr Leu Gln Ser Gly Val Pro Ser
        50                  55                  60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
    65                  70                  75

Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln
                80                  85                  90

His Asn Glu Tyr Pro Leu Thr Phe Gly Gln Gly Thr Lys Val Glu
            95                  100                 105

Ile Lys Arg
```

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 108 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val
 1               5                  10                  15

Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser
            20                  25                  30

Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
            35                  40                  45

Leu Leu Ile Tyr Ala Ala Ser Ser Leu Glu Ser Gly Val Pro Ser
        50                  55                  60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
    65                  70                  75
```

Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln
80 85 90

Tyr Asn Ser Leu Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu
95 100 105

Ile Lys Arg

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 121 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Glu Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Met Arg Pro Gly
1 5 10 15

Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Ser Phe Thr
20 25 30

Gly His Trp Met Asn Trp Val Arg Gln Arg Pro Gly Gln Gly Leu
35 40 45

Glu Trp Ile Gly Met Ile His Pro Ser Asp Ser Glu Thr Arg Leu
50 55 60

Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Val Asp Lys Ser
65 70 75

Ser Ser Ser Ala Tyr Met Gln Leu Ser Ser Pro Thr Ser Glu Asp
80 85 90

Ser Ala Val Tyr Tyr Cys Ala Arg Gly Ile Tyr Phe Tyr Gly Thr
95 100 105

Thr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser
110 115 120

Ser

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 121 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

```
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
 1               5                  10                  15

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Tyr Ser Phe Thr
            20                  25                  30

Gly His Trp Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
        35                  40                  45

Glu Trp Val Gly Met Ile His Pro Ser Asp Ser Glu Thr Arg Tyr
    50                  55                  60

Asn Gln Lys Phe Lys Asp Arg Phe Thr Ile Ser Val Asp Lys Ser
65                  70                  75

Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
            80                  85                  90

Thr Ala Val Tyr Tyr Cys Ala Arg Gly Ile Tyr Phe Tyr Gly Thr
        95                  100                 105

Thr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
    110                 115                 120

Ser
```

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 113 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

```
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
 1               5                  10                  15

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser
            20                  25                  30
```

Ser Tyr Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
35 40 45

Glu Trp Val Ser Val Ile Ser Gly Asp Gly Gly Ser Thr Tyr Tyr
50 55 60

Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser
65 70 75

Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
80 85 90

Thr Ala Val Tyr Tyr Cys Ala Arg Gly Phe Asp Tyr Trp Gly Gln
95 100 105

Gly Thr Leu Val Thr Val Ser Ser
110

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 184 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Lys Gly Asn Val Asp Leu Val Phe Leu Phe Asp Gly Ser Met Ser
1 5 10 15

Leu Gln Pro Asp Glu Phe Gln Lys Ile Leu Asp Phe Met Lys Asp
20 25 30

Val Met Lys Lys Leu Ser Asn Thr Ser Tyr Gln Phe Ala Ala Val
35 40 45

Gln Phe Ser Thr Ser Tyr Lys Thr Glu Phe Asp Phe Ser Asp Tyr
50 55 60

Val Lys Arg Lys Asp Pro Asp Ala Leu Leu Lys His Val Lys His
65 70 75

Met Leu Leu Leu Thr Asn Thr Phe Gly Ala Ile Asn Tyr Val Ala
80 85 90

Thr Glu Val Phe Arg Glu Glu Leu Gly Ala Arg Pro Asp Ala Thr
95 100 105

Lys Val Leu Ile Ile Ile Thr Asp Gly Glu Ala Thr Asp Ser Gly
110 115 120

Asn Ile Asp Ala Ala Lys Asp Ile Ile Arg Tyr Ile Ile Gly Ile
125 130 135

Gly Lys His Phe Gln Thr Lys Glu Ser Gln Glu Thr Leu His Lys
140 145 150

Phe Ala Ser Lys Pro Ala Ser Glu Phe Val Lys Ile Leu Asp Thr
155 160 165

Phe Glu Lys Leu Lys Asp Leu Phe Thr Glu Leu Gln Lys Lys Ile
170 175 180

Tyr Val Ile Glu

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 184 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Lys Gly Asn Val Asp Leu Ile Phe Leu Phe Asp Gly Ser Met Ser
1 5 10 15

Leu Gln Pro Asp Glu Phe Gln Lys Ile Leu Asp Phe Met Lys Asp
20 25 30

Val Met Lys Lys Leu Ser Asn Thr Ser Tyr Gln Phe Ala Ala Val
35 40 45

Gln Phe Ser Thr Ser Tyr Lys Thr Glu Phe Asp Phe Ser Asp Tyr
50 55 60

Val Lys Gln Lys Asp Pro Asp Ala Leu Leu Glu His Val Lys His
65 70 75

Met Leu Leu Leu Thr Asn Thr Phe Gly Ala Ile Asn Tyr Val Ala
80 85 90

Thr Glu Val Phe Arg Glu Glu Leu Gly Ala Arg Pro Asp Ala Thr
95 100 105

Lys Val Leu Ile Ile Ile Thr Asp Gly Glu Ala Thr Asp Ser Gly
110 115 120

Asn Ile Asp Ala Ala Lys Asp Ile Ile Arg Tyr Ile Ile Gly Ile
125 130 135

Gly Lys His Phe Gln Thr Lys Glu Ser Gln Glu Thr Leu His Lys
140 145 150

Phe Ala Ser Lys Pro Ala Ser Glu Phe Val Lys Ile Leu Asp Thr
155 160 165

Phe Glu Lys Leu Lys Asp Leu Phe Thr Glu Leu Gln Lys Lys Ile
170 175 180

Tyr Ala Ile Glu

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Lys His Val Lys His Met Leu
1 5

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Gly Tyr Ser Phe Thr Gly His Trp Met Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Met Ile His Pro Ser Asp Ser Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Gly Ile Tyr Phe Tyr Gly Thr Thr Tyr Phe Asp Tyr
1 5 10

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Arg Ala Ser Lys Thr Ile Ser Lys Tyr Leu Ala
1 5 10

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Ser Gly Ser Thr Leu Gln Ser
1 5

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids

(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Gln Gln His Asn Glu Tyr Pro Leu Thr
1 5

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Pro Lys Asn Ser Ser Met Ile Ser Asn Thr Pro
1 5 10

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

His Gln Ser Leu Gly Thr Gln
1 5

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

His Gln Asn Leu Ser Asp Gly Lys
1 5

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids

(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

His Gln Asn Ile Ser Asp Gly Lys
1 5

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Val Ile Ser Ser His Leu Gly Gln
1 5

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

CACTTTGGAT ACCGCGTCCT GCAGGT 26

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

CATCCTGCAG GTCTGCCTTC AGGTCA 26

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Met Ile Ala Pro Ala Ser Ser Ser Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 121 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
1 5 10 15

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Tyr Ser Phe Thr
20 25 30

Gly His Trp Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
35 40 45

Glu Trp Val Gly Met Ile Ala Pro Ala Ser Ser Ser Thr Arg Tyr
50 55 60

Asn Gln Lys Phe Lys Asp Arg Phe Thr Ile Ser Val Asp Lys Ser
65 70 75

Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
80 85 90

Thr Ala Val Tyr Tyr Cys Ala Arg Gly Ile Tyr Phe Tyr Gly Thr
95 100 105

Thr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
110 115 120

Ser

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Gly Tyr Ser Phe Thr Gly His Trp Met Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Gly Tyr Ala Phe Ala Gly Ala Trp Met Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Gly Tyr Ala Phe Thr Gly His Trp Met Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Gly Tyr Ser Phe Ala Gly His Trp Met Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

Gly Tyr Ser Phe Thr Ala His Trp Met Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

Gly Tyr Ser Phe Thr Gly Ala Trp Met Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Gly Tyr Ser Phe Thr Gly His Ala Met Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Met Ile His Pro Ser Asp Ser Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Met Ile Ala Pro Ala Asp Ala Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Met Ile His Pro Ser Ala Ser Ala Thr Ala Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

Met Ile Ala Pro Ala Asp Ser Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

Met Ile His Pro Ala Asp Ala Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

Met Ile Ala Pro Ser Asp Ala Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:38:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

Met Ile Ala Pro Ser Asp Ser Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:39:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

Met Ile Ser Pro Ser Asp Ser Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

Met Ile His Pro Ala Asp Ser Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

Met Ile His Pro Ser Ala Ser Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:42:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

Met Ile His Pro Ser Asp Ala Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

Met Ile His Pro Ser Asp Asn Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:44:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

Met Ile His Pro Ser Asp Gln Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:45:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

Met Ile His Pro Ser Asp Ser Ala Thr Arg Tyr Asn Gln Lys Phe

1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:46:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

Met Ile His Pro Ser Asp Ser Glu Thr Ala Tyr Asn Gln Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:47:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

Met Ile His Pro Ser Asp Ser Glu Thr Arg Tyr Asn Ala Lys Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:48:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

Met Ile His Pro Ser Asp Ser Glu Thr Arg Tyr Asn Gln Ala Phe
1 5 10 15

Lys Asp

(2) INFORMATION FOR SEQ ID NO:49:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

Met Ile His Pro Ser Asp Ser Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Ala Asp

(2) INFORMATION FOR SEQ ID NO:50:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

Met Ile His Pro Ser Asp Ser Glu Thr Arg Tyr Asn Gln Lys Phe
1 5 10 15

Lys Ala

(2) INFORMATION FOR SEQ ID NO:51:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

Gly Ile Tyr Phe Tyr Gly Thr Thr Tyr Phe Asp
1 5 10

(2) INFORMATION FOR SEQ ID NO:52:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid

(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

Gly Ile Ala Phe Ala Gly Thr Thr Tyr Phe Asp
1 5 10

(2) INFORMATION FOR SEQ ID NO:53:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

Gly Ile Tyr Phe Tyr Gly Ala Ala Ala Phe Asp
1 5 10

(2) INFORMATION FOR SEQ ID NO:54:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

Gly Ile Ala Phe Tyr Gly Thr Thr Tyr Phe Asp
1 5 10

(2) INFORMATION FOR SEQ ID NO:55:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

Gly Ile Tyr Phe Ala Gly Thr Thr Tyr Phe Asp
1 5 10

(2) INFORMATION FOR SEQ ID NO:56:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid

(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:

Gly Ile Tyr Phe Tyr Gly Ala Thr Tyr Phe Asp
1 5 10

(2) INFORMATION FOR SEQ ID NO:57:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

Gly Ile Tyr Phe Tyr Gly Thr Ala Tyr Phe Asp
1 5 10

(2) INFORMATION FOR SEQ ID NO:58:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:

Gly Ile Tyr Phe Tyr Gly Thr Thr Ala Phe Asp
1 5 10

(2) INFORMATION FOR SEQ ID NO:59:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

Arg Ala Ser Lys Thr Ile Ser Lys Tyr Leu Ala
1 5 10

(2) INFORMATION FOR SEQ ID NO:60:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid

(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

Arg Ala Ser Ala Ala Ile Ala Ala Tyr Leu Ala
1 5 10

(2) INFORMATION FOR SEQ ID NO:61:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:

Ser Gly Ser Thr Leu Gln Ser
1 5

(2) INFORMATION FOR SEQ ID NO:62:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:

Ala Gly Ala Ala Leu Gln Ser
1 5

(2) INFORMATION FOR SEQ ID NO:63:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

Ala Gly Ser Thr Leu Gln Ser
1 5

(2) INFORMATION FOR SEQ ID NO:64:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: Amino Acid

(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:

Ser Gly Ala Thr Leu Gln Ser
1 5

(2) INFORMATION FOR SEQ ID NO:65:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:

Ser Gly Ser Ala Leu Gln Ser
1 5

(2) INFORMATION FOR SEQ ID NO:66:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:

Gln Gln His Asn Glu Tyr Pro Leu Thr
1 5

(2) INFORMATION FOR SEQ ID NO:67:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:67:

Gln Gln His Ala Ala Ala Pro Leu Thr
1 5

(2) INFORMATION FOR SEQ ID NO:68:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: Amino Acid

(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:

Gln Gln Ala Asn Glu Tyr Pro Leu Thr
1 5

(2) INFORMATION FOR SEQ ID NO:69:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:

Gln Gln His Ala Glu Tyr Pro Leu Thr
1 5

(2) INFORMATION FOR SEQ ID NO:70:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:70:

Gln Gln His Asn Ala Tyr Pro Leu Thr
1 5

(2) INFORMATION FOR SEQ ID NO:71:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:71:

Gln Gln His Asn Glu Ala Pro Leu Thr
1 5